

Amendments to the Drawings:

The Office Action states that the source of cooling gas recited in claim 31 must be shown. Applicant respectfully submits that the source of cooling gas recited in claim 31 is adequately described in the specification on, for example, Page 6 Line 5, i.e., "Cooling gas (i.e. cool air) may be provided in gap 104 to reduce the heat generated, thereby reducing or substantially eliminating this potential scaling and/or buildup." Applicant has amended Figure 1 to schematically show the source of cooling gas.

Remarks/Arguments:

Claim Status:

Claims 1, 2, 5-9, 21-23, 31 and 32 are pending in the present case. Claims 24-30 and 33 have been canceled without prejudice or disclaimer of the subject matter thereof.

Claim Rejections Under 35 U.S.C. § 102(e):

Claims 1, 2, 6, 21-28 and 32 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Freeman et al. (U.S. Patent No. 6,590,217). Of these claims, claims 24-28 have been canceled without prejudice or disclaimer of the subject matter thereof. Applicant respectfully traverses the rejection of these claims and respectfully submits that these claims are patentable over Freeman et al. for the reasons set forth below.

Independent claim 1 has been amended to include the features of claims 24, 28 and 29 and 30. No new matter has been added. Independent claim 1, as amended, recites limitations that are neither disclosed nor suggested by Freeman et al., namely:

an *outer enclosure* and a space defined ... an array of UV energy sources positioned in said space ... a plurality of UV energy sensors provided among said UV energy sources in the UV energy source array ... wherein said UV energy sources and UV energy sensors are provided about an interior circumference of said outer enclosure.

Freeman discloses two UV lamps 140A and 140B arranged about the outside of the tubular body 112. A light sensor 222 is positioned adjacent one of the radiation sources to measure light output of the radiation source. A second light sensor 224 is positioned adjacent the tubular body 112 to measure light transmission from the UV lamp 140A through the tubular body. A plurality of high efficiency deflectors 192 formed of two symmetrical parts collect and focus scattered light emitted from the lamps 140A and 140B.

In contrast to Applicant's invention as it is recited in claim 1, Freeman does not disclose or suggest a **plurality** of UV energy sensors provided among said UV energy sources ... to sense UV energy transmitted through said barrier by said sources. In contrast, Freeman discloses two UV lamps 140A and 140B and a **single** light sensor 224 to measure light transmission from the UV lamp 140A through the tubular body 112. Furthermore, the single light sensor 224 is **not** provided about an interior circumference of the outer enclosure.

Moreover, Freeman does not disclose or suggest an outer enclosure. As defined in Applicant's specification for purposes of illustration of one embodiment, "fluid passage 100 and UV energy transmissive barrier 101 are **surrounded** by outer enclosure 102" (Page 4, Line 17). "Figure 1 illustrates an annular gap 104 between UV energy transmissive barrier 101 and outer enclosure 102. Cooling gas may be provided in gap 104 to reduce the heat generated..." (Page 6, Lines 1-7). Freeman's high efficiency deflectors 192 are provided merely to focus scattered light.

Freeman et al. therefore fails to disclose or suggest every element of Applicant's claimed invention, as recited in amended claim 1. Accordingly, for the foregoing reasons, Applicant respectfully submits that independent claim 1, as amended, is patentable over Freeman et al. and should be allowed. Claims 2, 6 and 21-23 are dependent upon claim 1, and therefore should also be allowed at least as dependent upon an allowable base claim. Reconsideration of claims 1, 2, 6 and 21-23 is respectfully requested.

Independent claim 32 has been amended to include the features of claim 33. No new matter has been added. Independent claim 32, as amended, recites limitations that are neither disclosed nor suggested by Freeman et al., namely:

an **array of UV energy sources** positioned in said space defined between said outer enclosure and said UV energy transmissive barrier; and a **plurality of UV energy sensors** provided among said UV energy sources and positioned...

As mentioned above, Freeman does not disclose or suggest "a plurality of UV energy sensors provided among said UV energy sources." In contrast, Freeman discloses two UV lamps 140A and 140B and a **single** light sensor 224 to measure light transmission from the UV lamp 140A through the tubular body 112. The single light sensor 224 is not provided among an **array** of UV lamps.

Freeman et al. therefore fails to disclose or suggest every element of Applicant's claimed invention, as recited in amended claim 32. Accordingly, for the foregoing reasons, Applicant respectfully submits that independent claim 32, as amended, is patentable over Freeman et al. and should be allowed, which action is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103(a):

Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (Patent No. 6,590,217) in view of Koji (Patent No. 4,899,057). Applicant respectfully traverses the rejection of this claim and respectfully submits that this claim is patentable over the proposed combination of Freeman et al. with Koji for the reasons set forth below.

Independent claim 1, from which claim 5 depends, has been amended to include the features of claims 24, 28 and 29 and 30. Independent claim 1, as amended, recites limitations that are neither disclosed nor suggested by Freeman et al. or Koji, namely,

an outer enclosure and a space defined ... an array of UV energy sources positioned in said space ... a plurality of UV energy sensors provided among said UV energy sources in the UV energy source array ... wherein said UV energy sources and UV energy sensors are provided about an interior circumference of said outer enclosure.

Koji does not overcome the deficiencies of the Freeman et al. reference. Accordingly, because claim 5 includes limitations that are neither disclosed nor suggested by Freeman et al. or Koji, *prima facie* obviousness cannot be established based on the cited references.

Claims 7-9, 29, 30 and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (Patent No. 6,590,217). Claims 29, 30 and 33 have been canceled without prejudice or disclaimer of the subject matter thereof. Applicant respectfully traverses the rejection of the remaining claims and respectfully submits that these claims are patentable over Freeman et al. for the reasons set forth below.

Independent claim 1, from which claims 7-9 depend, has been amended to include the features of claims 24, 28 and 29 and 30. Independent claim 1, as amended, recites limitations that are neither disclosed nor suggested by Freeman et al., namely a "**UV energy sensors ... provided about an interior circumference of said outer enclosure.**"

With regard to claims 7 and 9 specifically, the Office Action contends that "providing a UV energy sensor positioned opposite **each** UV energy source would have been obvious in order to multiply the overall sensing ability." Applicant respectfully submits that Freeman did not include or suggest the inclusion of additional light sensors to measure light transmission from the UV lamp 140B. The only suggestion to incorporate a plurality of sensors provided about an

interior circumference of an outer enclosure is found in Applicant's specification, and use of Applicant's suggestion is impermissible hindsight reconstruction.

Accordingly, because claims 7-9 include limitations that are neither disclosed nor suggested by Freeman et al., *prima facie* obviousness cannot be established based on the cited reference. Applicant respectfully submits that claims 7-9 are patentable over Freeman et al. and should be allowed.

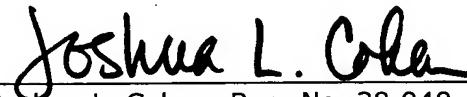
Claim 31 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (Patent No. 6,590,217) in view of Hallett (Patent No. 5,133,945). Applicant respectfully traverses the rejection of this claim and respectfully submits that this claim is patentable over the proposed combination of Freeman et al. with Hallett for the reasons set forth below.

As stated above, Independent claim 1, from which claim 31 depends, has been amended to include the features of claims 24, 28 and 29 and 30. Independent claim 1, as amended, recites limitations that are neither disclosed nor suggested by Freeman et al. or Hallett, namely a "**UV energy sensors** ... provided **about an interior circumference of said outer enclosure.**" In contrast, Hallett discloses a reactor system comprising a reactor vessel that permits the flow of aqueous media, a UV lamp, a transparent sheath for isolating the lamp from the interior of the vessel, and a brush device to remove deposited materials. Accordingly, because claim 31 includes limitations that are neither disclosed nor suggested by Freeman et al. or Hallett, *prima facie* obviousness cannot be established based on the cited references.

Conclusion

In view of the amendments in the claims and the remarks set forth above, Applicant respectfully submits that this application is now in condition for allowance, which action is respectfully requested.

Respectfully submitted,



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Attachment: Replacement Drawing Sheet

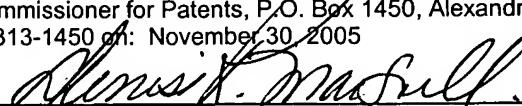
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Dated: November 30, 2005

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